

CLAIMS

1. A lifting surface (3) comprising a second leading edge (16), a second trailing edge (2), and at least one rotating flap (1) liable to turn about a longitudinal axis of rotation (4), defined according to the first span (5) of said flap (1), said flap (1) having also a profile (6) extending along a chord (CO) and comprising a first leading edge (7), a first trailing edge (8), and inner surface (9) and an outer surface (10), said flap (1) being arranged to rotate at said second trailing edge (2) while leaving a clearance (13) between said second trailing edge (2) and said first leading edge (7) of flap (1),

characterized in that:

- said inner surface (9) and said outer surface (10) have, beyond 25% of the flap (1) chord CO, shapes that are not concave;
- said first trailing edge (8) has a main angle ( $\alpha$ ) included between  $10^\circ$  and  $30^\circ$ ; and
- said axis of rotation (4) is situated at a first distance (C1) from said first leading edge (7), which is included between 15% and 35% of the chord (CO) of said flap (1).

2. A lifting surface according to the claim 1,

characterized in that said first leading edge (7) has a rounded shape provided with a more or less constant curve radius (R).

3. A lifting surface according to the claim 1,

characterized in that said first leading edge (7) has an elliptical shape whose first major axis to minor axis quotient is less than or

equal to 1.5.

4. A lifting surface according to any one of claims 1 to 3, characterized in that said inner surface (9) has a more or less linear shape.

5 5. A lifting surface according to any one of claims 1 to 3, characterized in that said inner surface (9) has a more or less convex shape.

6. A lifting surface according to any one of claims 1 to 5, characterized in that said outer surface (10) has a more or less  
10 linear shape.

7. A lifting surface according to any one of claims 1 to 5, characterized in that said outer surface (10) has a more or less convex shape.

8. A lifting surface according to any one of the previous  
15 claims, characterized in that said main angle ( $\alpha$ ) is approximately  $20^\circ$ .

9. A lifting surface according to any one of the previous claims, characterized in that said first trailing edge (8) has an elliptical  
20 shape whose second major axis to minor axis quotient is greater than or equal to 1.5.

10. A lifting surface according to the claim 9, characterized in that said second major axis to minor axis quotient is approximately equal to 2.

11. A lifting surface according to any one of the previous claims,

characterized in that said axis of rotation (4) of said flap (1) is situated at a first distance (C1) from the said first leading edge (7) corresponding more or less to 25.5% of the chord (CO).

12. A lifting surface according to any one of the previous claims,

characterized in that said clearance (13) is included between 1.5% and 3.5% of said chord (CO) of flap (1).

13. A lifting surface according to the claim 12,

characterized in that said clearance (13) corresponds to approximately 2% of said chord (CO) of flap (1).

14. A lifting surface according to any one of claims 1 to 11,

characterized in that said clearance (13) is included between 0.4% and 0.8% of a total length (L) separating said second leading edge (16) from said first trailing edge (8).

15. A lifting surface according to the claim 14,

characterized in that said clearance (13) corresponds to approximately 0.5% of said total length (L).

16. A lifting surface according to any one of the previous claims,

characterized in that it includes a partial overlap (P) of said first leading edge (7) by said second trailing edge (2).

17. A lifting surface according to the claim 16,

characterized in that said partial overlap (P) is less than 10% of

said chord (CO) of flap (1).

18. A lifting surface according to any one of the previous claims,

characterized in that it includes at least one filling means (14) to  
5 seal off the opening caused by said clearance (13).

19. A lifting surface according to the claim 18,

characterized in that said filling means (14) is located in a reference surface (11) of the lifting surface (3).

20. A lifting surface according to any one of the previous  
10 claims,

characterized in that it includes a multitude of flaps (1) arranged on the second span of said lifting surface (3), and in that said first span (5) of each of said flaps (1) is less than or equal to 15% of said second span.

15 21. A lifting surface according to the claim 20,

characterized in that said first span (5) of each of said flaps (1) is included between 7% and 10% of said second span of said lifting surface (3).